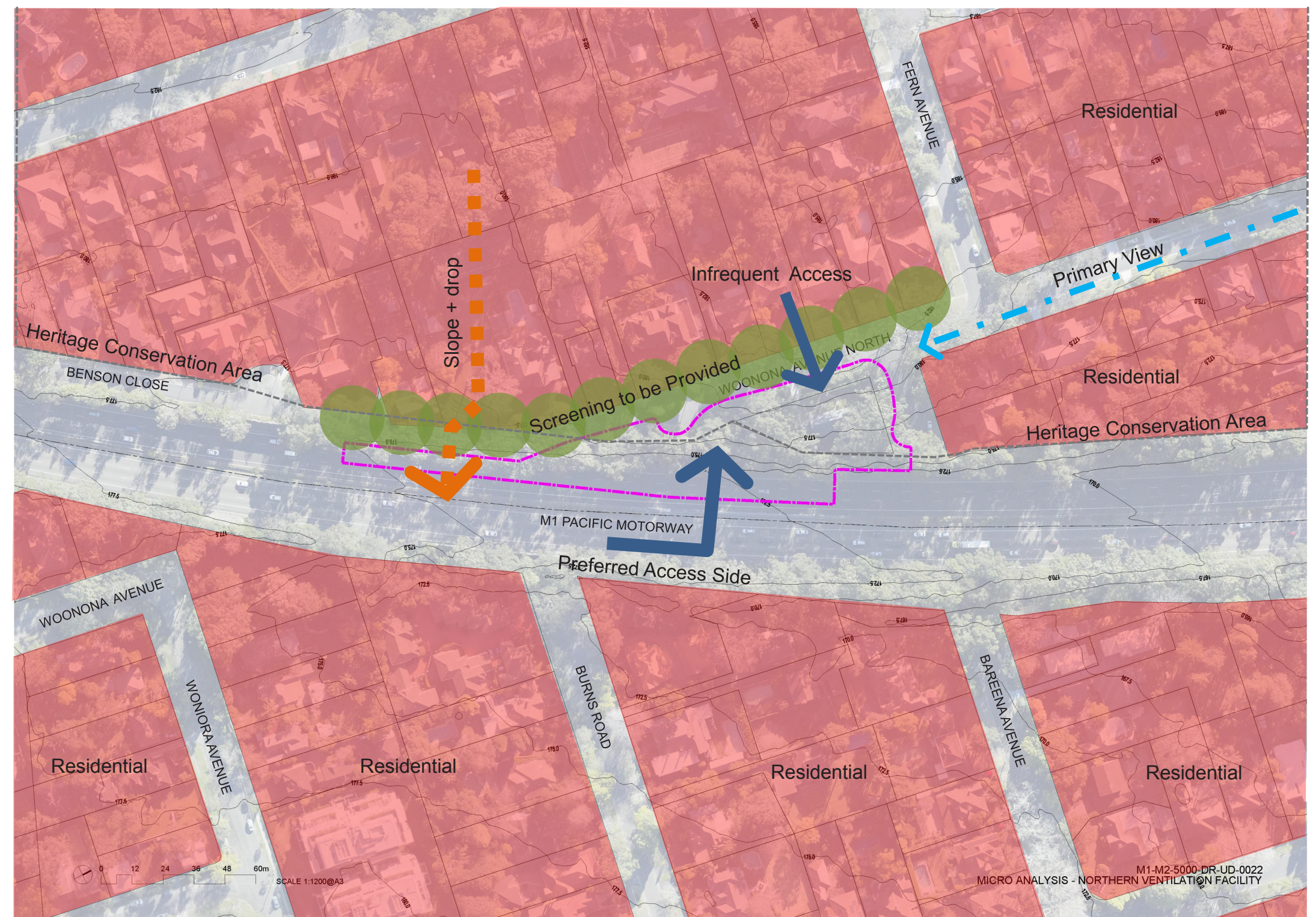


1.0 General

1.5.6 Northern Ventilation Facility - Corner of Bareena Avenue & Woonona Avenue North

The northern ventilation facility is bound by Bareena Avenue to the north, Woonona Avenue North to the west and the M1 Pacific Motorway to the east.

- The site cover an area of approximately 0.53 hectare;
- Adjacent uses are primarily residential single family dwellings;
- Landscape screening and buffer areas would be important on the north side of the site;
- The built form typology is generally one and two storey structures;
- The landform varies on the residential side with drops of 7-9 metres towards the M1 Pacific Motorway;
- No water courses exist on the site;
- Site is in a heritage conservation area;
- The site would be highly visible from residences on Woonona Avenue North;
- Preferred site access would be directly from M1 Pacific Motorway, and infrequent access would be through Woonona Avenue North; and
- Motorway corridor included as part of site.



1.0 General

1.5.7 Endeavour Energy Switching Station Site- Coral Tree Drive

The Endeavour Energy Switching Station Site is bounded by Coral Tree Drive, the Hills M2 Motorway Reserve and adjacent reserve areas. It is located adjacent to residential properties.

- It covers an area of approximately 0.13 hectare.
- Adjacent uses include residential single family dwellings and landscape screening and buffer areas would be important on the east, west and south side of the site.
- The built form typology is generally one and two storey structures on heavily vegetated properties with mature tree cover and single driveway access per unit. The landform is sloped away from Pennant Hills Road to the west with RLs that vary from 135.0 to 105.0.
- No water courses exist on the site.
- The site is not within a heritage conservation area nor contains listed heritage items.
- The site is highly visible from the residential areas across the street to the south.
- Preferred site access would be directly from Coral Tree Drive. Access from the Hills M2 Motorway is not possible. Access from eastern loop of Coral Tree Drive is also not possible, as this portion of the drive has been cut off from the western portion by a small reserve.



2.0 Urban & Landscape Design Principles

2.1 Introduction

The design concept builds on the experience of movement in the corridor's densely vegetated context and the resultant quality of visual experience that this creates.

- Undulating views along the road;
- Patterns of light and shade;
- Alternating vertical rhythm of tree structures;
- Changes in scale and density of natural elements as one looks up from the ground to the sky; and
- Movement over time of tree canopies and the resultant shimmer of sunlight over spaces of the corridor.

These concepts derived from the natural landscape and overlaid on its man made elements create pattern, form and identity for the project.

2.2 Urban Design Objectives

This chapter sets out the design objectives and overall design principles to guide the project's urban, architectural and landscape design proposals. On the basis of these objectives, design objectives, principles and strategies have been established for the project.

2.2.1 Overall Objective

Provide an environment that recognises the driver experience as the key determinant of urban form.

A primary consideration of the project is understanding the driver experience and how this experience can be enhanced through the design of urban form. The driver experience would form the public's perception of the project and in turn, its identity, legibility and its acceptance as a vital piece of Sydney's infrastructure.

Key to understanding the driver experience is identifying major decision points, an awareness of the driver's constantly shifting visual field and a sense of what may catch the driver's attention at any given point in the journey. These attributes form a continuous experience over time as one travels along the motorway.

A complementary experience exists with the public's interaction of the motorway from surrounding areas. In the case of the NorthConnex tunnel, this experience is limited to areas where portals and other surface features are located. This experience of the motorway is discontinuous, and occurs in broken segments of time.

The urban design and architectural expression of the project has been developed around a narrative theme that provides a link between these two types of experiences, supports a positive driver experience, and allows for a flexible yet complementary approach for surface features.

The project narrative has been built around the concept of the project as a transition element from the city to northern coastal areas. This concept has been articulated in the urban design, architecture and landscape of the project through development of a signature patterning system, developed from the ecosystem of the site itself.

2.2.2 Design Objectives

The following design objectives are derived and consolidated from briefing documents.

The design objectives for the project are to:

- Provide a safe facility for traffic, pedestrians, cyclists and disabled persons;
- Provide landmarks at selected places as a contribution to legibility;
- Maintain existing neighbourhood connectivity and local access for local traffic;
- Aesthetically enhance the road facility and associated works and structures;
- Integrate new elements with existing work in as seamless a way as possible to fulfil the urban design requirements;
- Improve existing environmental sustainability wherever possible;
- Enhance existing landscape and integrate new landscape both across and into the corridor;
- Continue the family of road elements and built forms already established; and
- Enhance driver experience and the visual contribution to the built environment.

2.0 Urban & Landscape Design Principles

2.3 Urban Design Principles

The principles described below are derived from the Roads and Maritime's urban design manual *Beyond the Pavement* and detailed analysis of the NorthConnex corridor and its context.

The Road and its Neighbours

Ensure that the urban and landscape design of the project delivers a safe, positive, functional, and pleasing visual experience for traffic, pedestrians, cyclists, disabled persons, and the corridor's neighbours.

Lateral Integration

Ensure the project responds to its immediate context, whether natural or man-made, by relating visual and other sense experiences of the corridor, at any moment, to the neighbouring environment and connectivity. This makes the road a good neighbour but also avoids the risk of monotony likely to result from the development of linear identity alone. The application of lateral integration and linear identity design principles simultaneously is achievable by applying them in different measure to the project's different physical elements.

Linear Identity

Establish a continuous, consistent and individual identity for the full length of the corridor. It is important that the corridor has a distinctive character so that users would identify and recall it. This assists orientation at the city-wide sense and helps distinguish regions within the metropolis, thus furthering the urban experience.

Route Diversity

This principle is essentially an outcome of lateral integration. In urban situations, the humanisation of a motorway project requires that its scale be reduced by creating variation along its length. Differentiation along the route makes the road legible and assists users in orienting themselves. Route diversity assists in the development of an aesthetically enhanced road experience.

Landmarks

The creation of memorable landmark features along the route is a further means of increasing route diversity as well as facilitating user orientation and aesthetic enhancement. Artistic responses assist road users in locating and identifying with their road environment.

Views

Views from the road offering a positive visual experience and assisting users to appreciate that the environment should be maintained and enhanced. Similarly, positive views to the road from selected outside positions are to be encouraged.

Environmental Considerations

Ensure that the design proposals respect and, where possible, enhance the natural environmental and ecological systems within the corridor and its related context. Existing indigenous vegetation unaffected by construction works would be retained.

Environmental Generators

Natural physical characteristics of the corridor and region, including soil types, topography, watercourses and drainage patterns, endemic vegetation and micro-climatic conditions should, wherever possible, become design drivers, particularly for landscape design.

Lighting

Beyond functional requirements, use lighting to facilitate orientation by highlighting project design features and minimise light spill into the night sky.

Residual Land

Land within the corridor which is not required for the road, tunnel portals or shared path and their associated engineering works (cuttings, embankments and interchanges) should be integrated into local public open space systems or evaluated for its potential for future development wherever possible and appropriate.

Heritage

Identify significant heritage items or locales and incorporate and interpret them within the design proposals.

Urban Design

Setting up context for experience.

Experience

Movement and time.

Scales

Regional reference vs local reference.

Driver's Point of View

Continuous experience vs local experiences.

2.0 Urban & Landscape Design Principles

The current nature of the journey along Pennant Hills Road between the M1 Pacific Motorway and Hills M2 Motorway has three distinct experiences. These include the major decision point at the Hills M2 Motorway, forming an urban gateway, a series of surface elements and experiences along Pennant Hills Road, and a green gateway where Pennant Hills Road meets the M1 Pacific Motorway.

The northern and southern ends of the corridor represent differing parts of an overall journey to or from the Sydney Metropolitan core. The project can be considered essentially an extension of the M1 Pacific Motorway to meet the Hills M2 Motorway.

Therefore, the main decision point for this piece of infrastructure is at the southern end drivers change between the two motorways. At the northern end of the project, drivers, having already made the decision to travel north on the new motorway, do not face another decision point, they simply continue north. Likewise drivers heading south do not need to make a major decision about whether to travel east or west on the Hills M2 Motorway until they reach the southern end of the new motorway. The northern interchange with Pennant Hills Road and the Pacific Highway serves as a local exit and is, therefore, a lower hierarchy of decision making.

Each of these areas has distinct experiences that include:

Urban Gateway

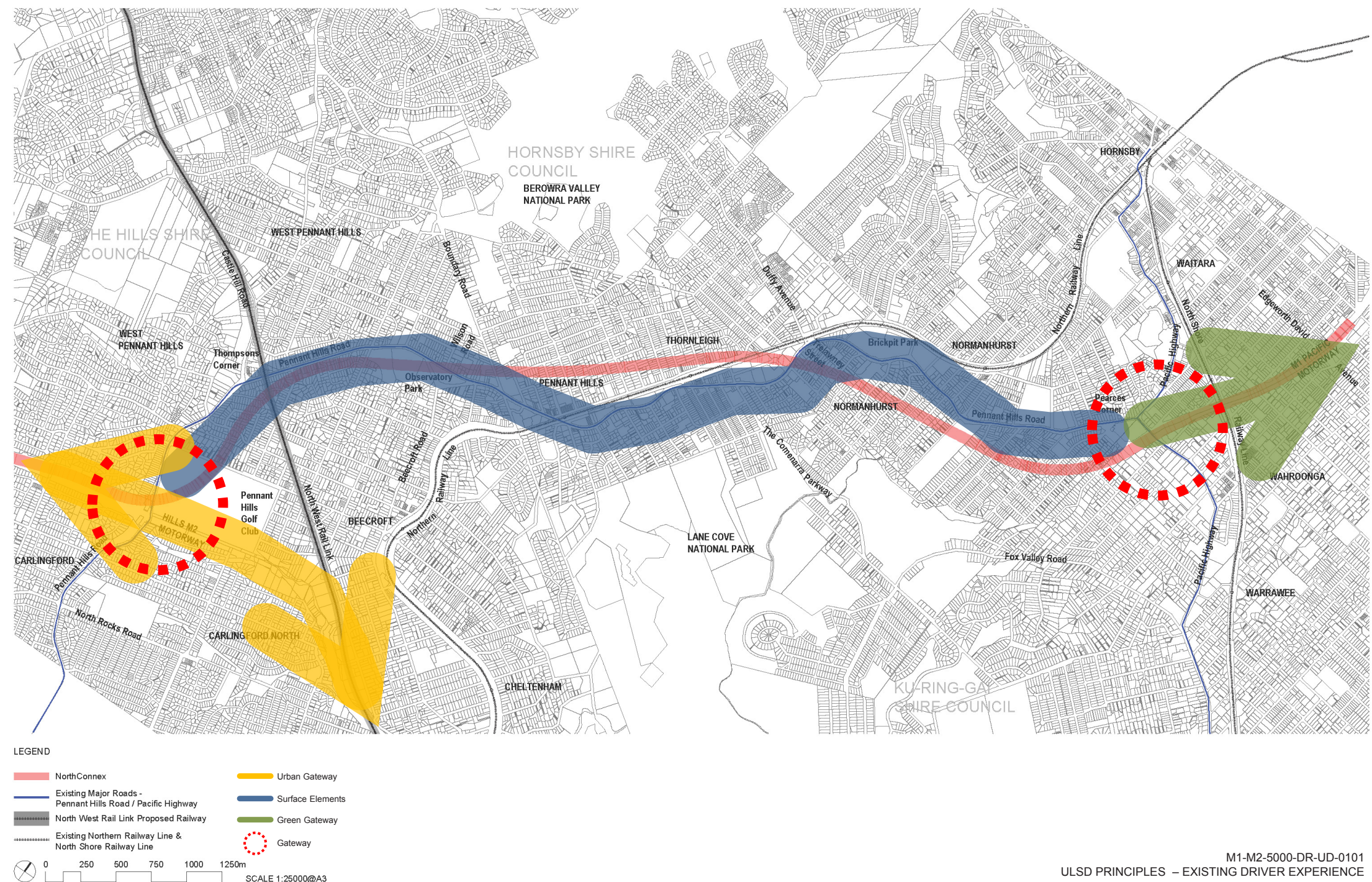
- Collection of elements to create gateway experience;
- Simple portal design;
- Bring surroundings into design concept; and
- Iconic marker.

Surface Elements

- Individual Structures;
- Use scaling devices to reduce impact;
- Reinstate landscape; and
- No Iconic markers.

Green Gateway

- Elements to create continuity of experience;
- Simple portal design;
- Bring surroundings into design concept;
- No iconic marker; and
- Natural identity.



2.0 Urban & Landscape Design Principles

The project would provide a direct link between the M1 Pacific Motorway and the Hills M2 Motorway for the first time bypassing the surface features of Pennant Hills Road. This would transform the driver experience and would inform the architectural and urban language of the project.

Appropriate design expressions for each part of the new driver experience would include:

Urban Gateway - Interchange Between Two Motorways

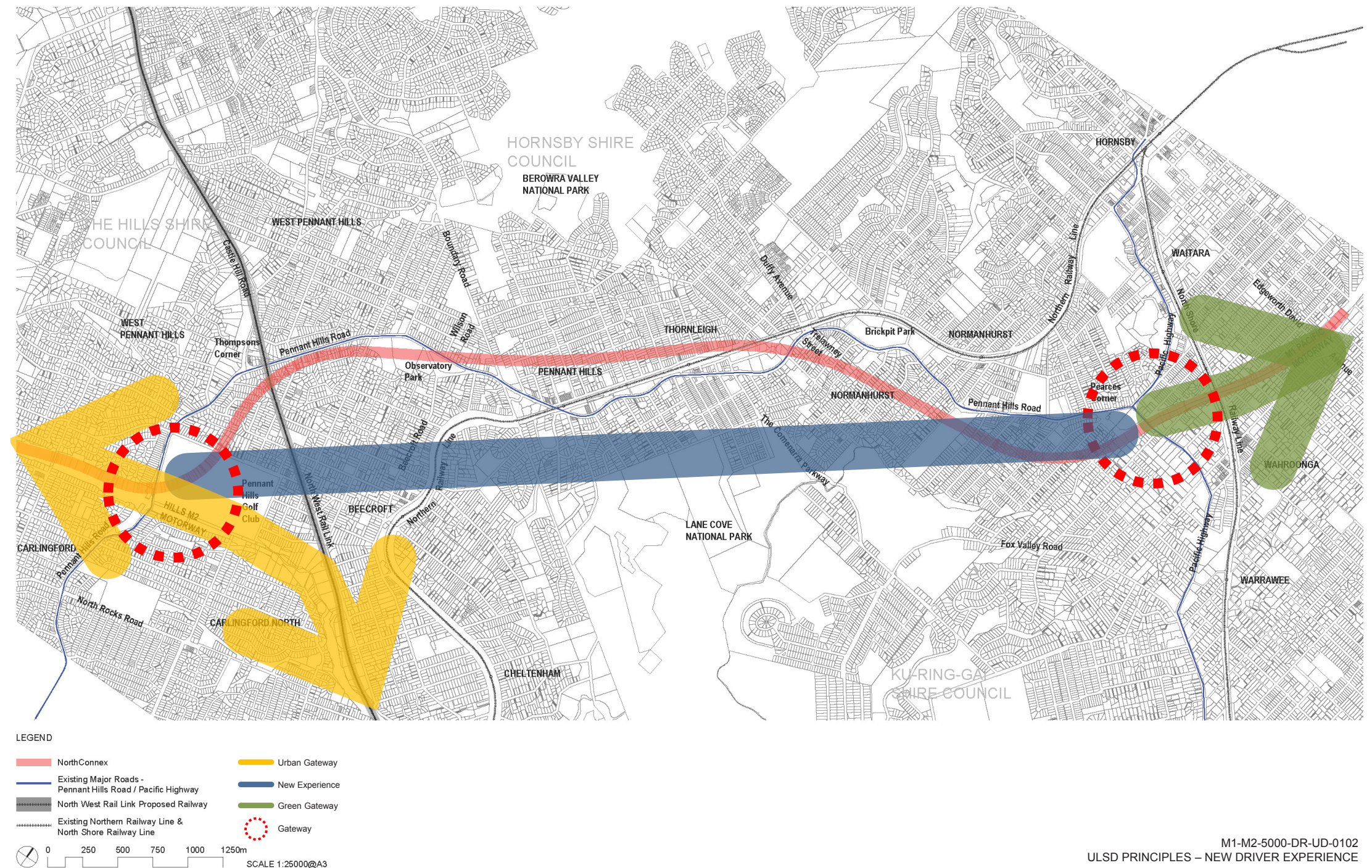
- Iconic elements;
- Significant markers; and
- Distance visibility

New Experience - The Tunnel

- Reference points;
- Orientation; and
- Progress

Green Gateway - Local Interchange

- Subtle integration; and
- Ease of transition



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ULSD PRINCIPLES – NEW DRIVER EXPERIENCE